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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/719,020

11/24/2003

Akira Matsuda

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7590

06/09/2009

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EXAMINER

LAM, CATHY FONG FONG

ART UNIT

PAPER NUMBER

1794

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/719,020	<b>Applicant(s)</b> MATSUDA ET AL.	
	<b>Examiner</b> Cathy Lam	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20 and 22-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20 and 22-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

In view of the amendment and remarks filed on March 03, 2009, the pending claims continue to be unpatentable as following:

***Claim Rejections - 35 USC § 112***

1. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant now includes the thin resistance layer thickness of 0.025 to 0.2  $\mu\text{m}$ . Such limitation could not be found nor apparent in those pages referred by applicant.

***Claim Rejections - 35 USC § 103***

2. Claims 20, 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atobe (JP 59-50190).

Atobe teaches a brass plate coated with a NiP resistance layer having 16.5wt% of phosphorus (working Example 3). The plating solution includes hydrochloric acid, and has a pH value of 0.8 at a 60°C bath temperature and at a 6 A/dm<sup>2</sup> current density (see working example 1).

Atobe's NiP electroplating bath comprises nickel sulphamate, phosphoric acid and phosphorus acid.

Atobe may not exemplify the plating composition having the claimed relative amounts of Ni sulphamate, phosphoric acid and phosphorous acid. However, Atobe suggests a range of effective amounts of each that would be encompassed by the

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claimed amounts. One skill in the art would form a coating bath composition having the claimed amounts of nickel sulphamate and the phosphoric and phosphorous acids because an optimum plating composition involves only routine experimentations.

Atobe teach the metal foil being a steel foil (i.e. iron alloy foil) or a brass foil (i.e. Cu-Zn alloy), but is silent about its surface roughness (Examples 2 & 3).

In view of the prior art teaching, it would have been obvious to choose a low surface roughness, particularly  $< 2.5 \mu\text{m}$  because Atobe's goal was to form a mirror surface plated metal foil. In example 3, the brass foil after the NiP plating has a mirror surface of  $1.0 \mu\text{m}$ .

3. Claims 20 and 22-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rice et al (US 4888574) in view of Kazanovtse et al (WPI Derwent, vol 29) further in view of Applicant's own prior art admission.

Rice teaches a multilayered printed circuit board material and a method for producing the board material. The circuit board comprises a substrate, an electrical resistance material layer, and a conductive material layer.

The conductive material layer is copper. The resistance material layer comprises a nickel-phosphorus alloy having up to 30 weight percent phosphorus, and the Ni-P alloy layer is produced by an electroplating technique.

Rice teaches away from the usage of sulfate salts, although Example 1 (column 3) does describe a nickel plating bath containing nickel sulfate and nickel chloride. Rice et al. teaches plating bath temperatures and plating bath pH values which also lie within

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applicants' claimed temperature range and claimed pH value range (column 1, lines 44 to 61; column 2, lines 17 to 61; and column 3, line 28 to column 5, line 9).

Rice does not teach or suggest the usage of nickel plating baths that contain sulphamate ions.

Kazanovtse. teaches a nickel plating bath composition for the deposition of nickel-phosphorus alloys on a cathode such as copper or stainless steel. The nickel plating bath comprises nickel sulphamate, nickel chloride, orthophosphoric acid, and zinc phosphate.

Kazanovtse discloses a method of forming a nickel-phosphorus alloy coating on a conductive substrate by using a sulphamate-orthophosphoric acid plating bath under the following conditions: pH = 1.2 to 1.6; temperature = 70 to 75° C; and current density of 30 A/dm<sup>2</sup> (see the English-language Abstract in WPI World Patent Information Derwent).

While Kazonovtse teaches nickel sulphamate amounts lower than those claimed, Applicant's Admissions teach that the claimed amounts of nickel sulphamate are conventional. See Applicant's Admissions (page 7, lines 3-7 in the Specification). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected conventional amounts of a conventional nickel salt, such as the claimed amounts of nickel sulphamate salt, for use in a nickel plating bath as taught by Rice in view of Kazanovtse in forming the articles of Rice in view of Kazanovtse since such conventional conditions would be expected to be effective. Rice motivates using non-nickel sulfate salts and Kazanovtse motivates nickel sulphamate plating

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compositions for forming NiP layers. A person skilled in the art of nickel electroplating would have been motivated to rely on Kazanovtse in conjunction with conventional deposition techniques for deposition using nickel sulphamate of the claimed amounts of nickel sulphamate because a result- effective variable (such as the usage of a sulphamate salt in a nickel plating bath) can be optimized by a skilled person in order to achieve a recognized result (such as a Ni-P alloy plating having improved structural properties or characteristics). See In re Boesch, 205 USPQ 215 (CCPA 1980).

Generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.

### ***Response to Arguments***

4. Applicant's arguments filed on 03-03-09 have been fully considered but they are not persuasive. The prior art of record continue to encompass the concept of the present invention.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cathy Lam whose telephone number is (571) 272-1538. The examiner can normally be reached on 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on (571) 272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cathy Lam/  
Primary Examiner, Art Unit 1794